

CLAIMS

I claim:

1. A method of desalinating seawater, comprising the steps of:

allowing seawater to pass through an inlet with a check valve into a brine enclosure;

reverse osmosis of the seawater as water molecules pass from the brine enclosure through a membrane into a fresh water enclosure, while the membrane blocks the passage of sodium and chlorine ions;

maintaining a pressure differential across the membrane by pumping desalinated water out of the fresh water enclosure; and

pumping water having an increased concentration of salt out of the brine enclosure to a brine return;

whereby, if the pumping is discontinued after the brine return is filled with the water having an increased concentration of salt, the force of gravity will cause the water having an increased concentration of salt to continue to flow through the brine return.

2. The method of desalinating seawater according to claim 1, wherein the brine enclosure is directly connected to an inlet of the brine return.

3. The method of desalinating seawater according to claim 1, wherein there is a channel having at least one top opening, the brine enclosure has an outlet connected to the channel through which water having an increased concentration of salt is pumped from the brine enclosure into the channel, and an inlet of the brine return is connected to the channel.

4. The method of desalinating seawater according to claim 3, wherein the channel has at least one bottom opening.

5. The method of desalinating seawater according to claim 4, wherein the channel is cylindrical.

6. The method of desalinating seawater according to claim 5, wherein at least one pressure hull is retained on the channel, said pressure hull having an external skin that is impermeable to water.

7. The method of desalinating seawater according to claim 6, wherein said pressure hull contains at least one reverse osmosis device.

8. The method of desalinating seawater according to claim 7, wherein said reverse osmosis device contains said membrane, said fresh water enclosure, and said brine enclosure.

9. The method of desalinating seawater according to claim 8, wherein the channel rests directly on the bottom of the sea.

10. The method of desalinating seawater according to claim 8, wherein the channel is supported by a platform that rests on the bottom of the sea.

11. The method of desalinating seawater according to claim 8, wherein the inlet has a screen and at least one filter through which seawater must pass before it reaches the membrane.

12. A method of desalinating seawater, comprising the steps of:

allowing seawater to pass through an inlet with a check valve into a brine enclosure;

reverse osmosis of the seawater as water molecules pass from the brine enclosure through a membrane into a fresh water enclosure, while the membrane blocks the passage of sodium and chlorine ions;

maintaining a pressure differential across the membrane by pumping desalinated water out of the fresh water enclosure; and

pumping water having an increased concentration of salt out of the brine enclosure to a brine return that is an elongated channel that passes along the sea floor, from an area where the sea floor has a higher elevation near an inlet of the brine return, to an area where the sea floor has a lower elevation near an outlet of the brine return;

whereby, if the pumping is discontinued after the brine return is filled with the water having an increased concentration of salt, the force of gravity will cause the water having an increased concentration of salt to continue to flow through the brine return.

13. The method of desalinating seawater according to claim 12, wherein the brine enclosure is directly connected to an inlet of the brine return.

14. The method of desalinating seawater according to claim 12, wherein the membrane, the fresh water enclosure and the brine enclosure, are contained within a reverse osmosis system that is supported by a platform that rests on the bottom of the sea.

15. The method of desalinating seawater according to claim 12, wherein there is a channel having at least one top opening, the brine enclosure has an outlet connected to the channel through which water having an increased concentration of salt is pumped from the brine enclosure into the channel, and an inlet of the brine return is connected to the channel.

16. The method of desalinating seawater according to claim 15, wherein the channel is supported by a floatation device.

17. The method of desalinating seawater according to claim 16, wherein the membrane, the fresh water enclosure and the brine enclosure, are contained within at least one reverse osmosis device within a reverse osmosis system that is retained on the channel.

18. The method of desalinating seawater according to claim 17, wherein the reverse osmosis system is held in place by lines anchored to the sea floor.

19. The method of desalinating seawater according to claim 18, wherein the channel has a closed bottom.

20. The method of desalinating seawater according to claim 12, wherein the inlet has a screen and at least one filter through which seawater must pass before it reaches the membrane.